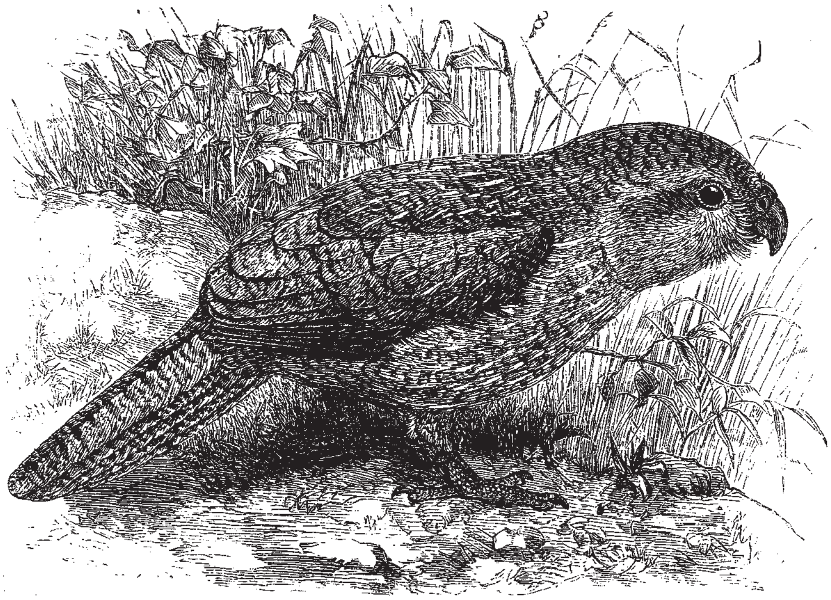
NEW ZEALAND ANIMALS IN THE ZOOLOGICAL SOCIETY'S GARDENS

AT a recent examination for the Natural Science tripos at Cambridge, one of the pieces of information asked for in vain by the examiners was, I am told, "some account of the chief peculiarities of the Fauna of New Zealand." It so happens that the series of animals of our antipodean colony in the Zoological Society's Gardens is at the present moment unprecedentedly complete, and had the young gentlemen of Cambridge paid them an attentive visit, would have furnished ample materials for a proper answer to the examiners. I propose, therefore, to offer a few remarks upon them, and to make them the basis of some sort of answer to the question above mentioned.

Mammals in New Zealand there are none, except introduced species and bats, so it is not in this class of the animal kingdom that the visitor to the Society's gardens will find examples of New Zealand animals. There are, it is true, traditions and reports of some sort of "native rat"[*] having been occasionally met with, but no one has yet been able to produce a specimen of it, and after all, when captured, it may turn out to be only a stray individual of that cosmopolitan errant *Mus decumanus*. There are also marine mammals, both seals and whales, to be met with in the surrounding seas. But no terrestrial mammals, except bats, are indigenous to New Zealand, and for a country of such size, and situated in such latitudes, this is certainly a very remarkable and indeed unparalleled peculiarity.

With the next class of Vertebrates, however, the case is quite different. Bird-life, although according to the general evidence of the settlers not individually abundant, cannot be said to be badly represented in New Zealand. Dr. Otto Finsch, to whom we are indebted for the most recent summary of the birds of these islands,[†] gives 155 as the number of well-determined species hitherto met with, and there are, doubtless, a few more still to be made out, which will probably not long escape the grasp of several excellent naturalists who are now at work on the fauna of their adopted country. Of these 150 species, one third, or perhaps rather more, are found only in New Zealand. But what makes its bird-life still more peculiar, is that the greater part of these 50 species belong to some 17 or 18 generic forms which are quite unknown elsewhere. And several of these forms (such as *Heteralocha*, *Strigops*, *Apteryx*, and *Anarhynchus*) are of the most bizarre and extraordinary character.



KAKAPO, OR GROUND PARROT

Of the Huia bird (*Heteralocha gouldi*) I have already given a notice and figure in the pages of NATURE.[*] I am not aware that there is any other instance in the class of birds in which the difference between the bill of the two sexes is so great, though something of the same sort is exhibited in the Humming-birds of the genera *Grypus* and *Androdon*. The Huia bird in the Zoological Society's Gardens has recently moulted off its worn and injured plumage, and is now in excellent health and condition.

Of the very singular *Kakapo*, or Ground Parrot of New Zealand (*Strigops habroptilus*), I regret to say we have at present no example in the Society's Gardens. In the summer of last year one of these birds was successfully brought home from the Hokatika district, and was temporarily deposited by its owner in the Regent's Park Gardens, where it remained several months. But we were not able to come to terms as to its fair value, and the bird was consequently removed. The chief peculiarities of the *Kakapo* are its nocturnal habits, its abortive wings (which are nearly incapable of flight), the corresponding non-development of the crest of the sternum, and the possession of a facial disc, which gives it somewhat of an owl-like appearance. It is, however, a true parrot in the most essential part of its structure, and its food is strictly vegetable. During its sojourn in the Zoological Society's Gardens, it was fed principally upon corn and seeds of various sorts. The colour of this bird is of a bright green, freckled with black, which is said to assimilate it exactly to the mosses of the New Zealand forests where it is found. Although disappointed in not retaining possession of the example of this parrot which has been already in the Gardens, we are in great hopes (from intelligence lately received from New Zealand) of the approaching arrival of other individuals of this rare bird.

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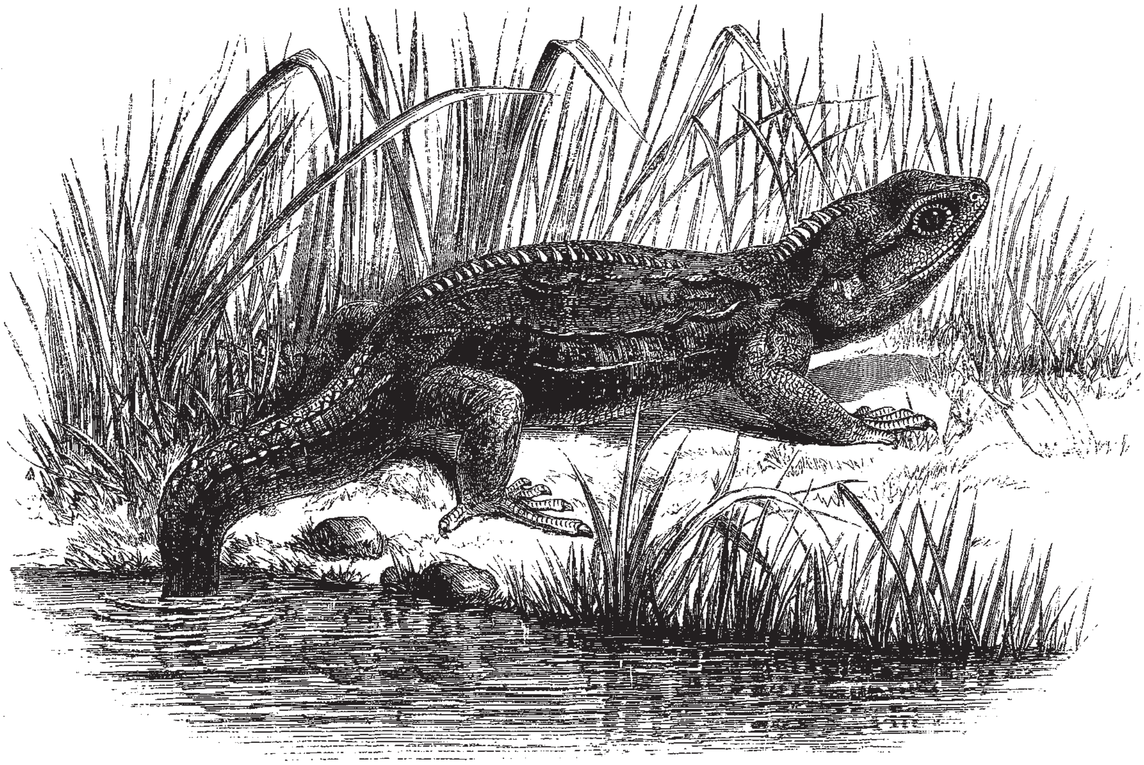
[*] Vol ii. p. 146, June 23, 1870.

[*] See "Dieffenbach's New Zealand," vol. ii., App. p. 185.

[†] Ueber die Vogel Neu-Seelands. Von Dr. O. Finsch in Bremen. Journ. f. Ornith., 1870, p. 241.

The Kiwi or Apteryx, which I mentioned above as a third remarkable form of New Zealandian bird-life, has long been represented in the Zoological Society's living collection. In December 1857, Mr. Eyre, then Lieut.-Governor of the Colony, presented to us the first example of this remarkable form that had ever been brought alive to Europe. This bird is a female, as has been evidenced by her producing enormous eggs for several years in succession. The first of these eggs was deposited in June 1859, since which time she has usually laid two in the spring of every year, at intervals of about a month between them. The egg of the Apteryx when first deposited weighs about $14\frac{1}{2}$oz.; it is smooth and of a dirty white colour, and measures $4\frac{3}{4}$in. in length by $2\frac{9}{10}$in. in breadth. As the weight of the parent bird is only about 60 oz., it will be seen that the weight of the egg is nearly equal to one-fourth of the bird, a fact, I suppose, quite without parallel in the animal kingdom. Since the acquisition of the female, two additional specimens of the Apteryx, both of the opposite sex, have been received: one in 1864, presented by Major Keane, and a second in 1865, presented by Mr. Henry Slade. The female continuing to produce eggs after the males had been placed in her company, we were in hopes of rearing young Kiwis in the Gardens, especially as on more than one occasion the male, as is the custom among Struthious birds, commenced to incubate. This operation he performed by squatting closely on the egg placed between his feet, so that its long axis was parallel to that of his body. Unfortunately, however, in no case has there been any result, and the eggs when examined have shown no appearance of having been impregnated. And at length our sole surviving male fell a victim to the exemplary zeal with which he performed the duties of incubation. After sitting upon one of these huge eggs for upwards of six weeks, he died, probably from exhaustion, so that the original female, received in 1851, is at present the only representative of the species in the Society's Gardens.



TUATERA LIZARD

Besides the above-mentioned specimens of Mantell's *Apteryx* (which is probably not really different from the original *Apteryx australis* of Shaw) the Zoological Society have recently received a single living example of the undoubtedly distinct Owen's Apteryx (*Apteryx owenni*). This bird arrived in July 1869, having been forwarded as a present from the Acclimatisation Society of Otago. It is readily distinguishable from the ordinary species by its smaller size, spotted feathers, and the softer and more fluffy plumage, but is closely allied to it in general structure and in all other peculiarities.

The fourth bird that I mentioned as one of the more remarkable bird-forms inhabiting New Zealand, has not yet been received in this country in a living state, indeed it is only quite recently that naturalists have become perfectly acquainted with the eccentricity of its structure. It is a small wading bird, allied to the Shore-plovers, but possessing the extraordinary feature of having the end of its bill curved towards the right. By the examination of the chick of the *Anarhynchus frontalis*, as this singular bird is called, Professor Newton has recently shown that this abnormality commences from the egg.* Such instances of asymmetrical structure are very rare amongst the more highly organised animals, indeed I am not aware of any similar instance among birds.

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* Proc. Zool. Soc. Nov. 15 1870, p. 674.

Besides the birds above-mentioned, the Gardens contain the only examples ever received in Europe of the *Kaka* Parrot (*Nestor hypopolius*), another form of bird-life restricted to the forests of New Zealand.

I must now say a few words about the Reptilian life of New Zealand. As regards this branch of the animal kingdom, the Zoological Society's Gardens cannot be said to be very well supplied; at the same time we have now in them a living example of what is certainly the rarest and most singular species of the reptilian class that inhabits these islands. This is the Tuatera Lizard (*Sphenodon punctatum*), of which I have already given a notice in a former article in this journal.[*] Dr. Günther will, I hope, forgive me for calling it a lizard, for in spite of his elaborate proof that it is utterly different from every other known form of the Lacertian order, I cannot quite agree with him that it is entitled to form an order of itself.

As regards the general character of the reptilian fauna of New Zealand, after mentioning the Tuatera, there is not much to be said. There are, I believe, no representatives of the orders of Tortoises, Crocodilians, or Ophidians to be met with in these islands. Besides the *Sphenodon*, the only other reptiles indigenous to New Zealand are about half-a-dozen small lizards belonging to the families *Scincidæ* and *Geccotidæ*. Some of these are of Australian character, the remainder are peculiar to New Zealand.

Of the class of Batrachians, only one member is known to exist in New Zealand—a frog (*Leiopelma hochstetteri*), not found elsewhere.

Fresh-water Fishes, which must also be taken into account when estimating the peculiarities of a land-fauna, are likewise not very abundant in New Zealand. Two forms, however, deserve special notice, as indicating a former land connection at however remote an epoch, between Australia and South America passing through these islands. These are *Protrotoctes*,[†] belonging to a group representative of the Salmonoids of the northern hemisphere, and *Galaxias*, belonging to a family allied to the Pikes (Esocidæ) which is likewise found in the rivers of Australia and Antarctic America. Nearly allied to *Galaxias* is a very curious form, recently described by Dr. Günther under the name *Neochanna apoda*,[‡] but remarkable for the absence of ventral fins, and its mud-loving habits. This fish is restricted to New Zealand.

The peculiarities of the fauna of New Zealand, so far as is shown by its terrestrial vertebrated animals, may therefore be summed up somewhat as follows :—

1. The absence of all Mammals, except two species of Bats.
2. The presence of numerous forms of Bird-life not known elsewhere, such as *Heteralocha*, *Nestor*, *Strigops*, *Apteryx*, and *Anarhynchus*.
3. The absence of Reptiles, except two genera of lizards and the *Sphenodon punctatum*, which, according to some of the best authorities, has claims to constitute an order of reptiles *per se*.
4. The absence of Batrachians, except one species of frog not known elsewhere.
5. The paucity of fresh-water Fishes—few genera only being known—which are allied partly to Australian and partly to Antarctic American forms.

But before closing our summary, it must not be forgotten to be mentioned that almost within the historical period New Zealand was tenanted by upwards of a dozen species of Struthious birds, constituting a family *per se*, but allied to the Cassowaries and Emus of Australia and the Papuan Islands. We must therefore add as a sixth item :

6. The recent presence of a peculiar family of gigantic Struthious Birds, now extinct—the Dinornithidæ—restricted to New Zealand.

P. L. SCLATER

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[*] See NATURE, vol. ii. p. 148

[†] Cf. Günther, Proc. Zool. Soc., 1870, p. 152.

[‡] See Ann. Nat. Hist. ser. 3, vol. xx. p. 305.

NOTES

IN other columns will be found the reports which have reached us up to the present time from the different sections of the Eclipse Expedition. Notwithstanding the unpropitious weather at nearly all the stations, we trust that some observations have been made which will throw light on still unsolved problems of Solar Physics. It is with great satisfaction that all English astronomers will hear that M. Janssen performed his perilous balloon voyage in safety, and reached his destination in Algeria; although he does not appear to have been rewarded with the opportunity of taking any satisfactory observations.

THE *Journal of Botany* states that the post of Curator of the Botanic Gardens, Calcutta, vacated by the death of Dr. Anderson, has been given to Dr. King, who has done some work in Indian botany, but is comparatively unknown in English botanical circles. This is the best-paid botanical appointment in England or any of its dependencies.

THE following are announced as the probable arrangements for the Friday evening meetings at the Royal Institution before Easter, 1871, to which members and their friends only are admitted :—Friday, January 20th, Professor Tyndall, LL.D. F.R.S.; Friday, January 27th, Professor Odling, F.R.S.; Friday, February 3rd, W. Spottiswoode, Treasurer R. S.—Some experiments on Successive Polarization of Light made by Sir C. Wheatstone; Friday, February 10th, E. J. Reed, C.B.—On Some Fallacies connected with Ships and Guns; Friday, February 17th, James N. Douglas, Engineer to the Trinity House—On the Wolf-Rock Lighthouse; Friday, February 24th, Dr. W. B. Carpenter, F.R.S. &c.—The latest Scientific Researches in the Mediterranean and Straits of Gibraltar; Friday, March 3rd, Capt. Noble, F.R.S.—On the Pressure of Fired Gunpowder; Friday, March 10th, W. Mattieu Williams—On Rumford's Scientific Discoveries; Friday, March 17th, J. Norman Lockyer, Esq., F.R.S.—On the Eclipse; Friday, March 24th, Professor J. Clerk Maxwell, M.A., F.R.S.—On Colour; Friday, March 31st, Professor Max Müller, LL.D.—On Solar Myths.

THE following gentlemen have obtained a first class in Natural Science at Oxford at the last examination :—C. Childs, Scholar of Merton, F. H. Champneys, Brazenose, F. W. Fison, Scholar of Christ Church, S. J. Sharkey, Scholar of Jesus.

THE Natural Science Scholarship at Merton College, Oxford, has been awarded to Mr. Richmond of the Manchester Grammar School, and an Exhibition to Mr. Ferguson of the same school.

PROF. AGASSIZ announces that the Museum of Comparative Zoology at Harvard College, Cambridge, U.S., is prepared to furnish extensive collections of all the rocks and loose deposits found upon and about the Key and reefs of Florida; also complete collections of the Corals in fresh and well-preserved specimens, in exchange for recent and fossil corals from other parts of the world.

THE *Pall Mall Gazette* states that a committee has been appointed, with Captain Beaumont, R.E., M.P., as president, and Lieutenant Grove, R.E., and Mr. Abel, F.R.S., as members, to carry out experiments on the utilisation of balloons for reconnoitring purposes. The former experiments on this subject, which were carried out at Woolwich and elsewhere a few years ago, were not attended with any useful results, and we believe the attempts which have been made during the present war to reconnoitre with balloons—an application not to be confused with the use of balloons for postal purposes—have not been more satisfactory. But the Americans on several occasions employed balloons to reconnoitre with fair success, and Captain Beaumont's committee may be able to throw some new light upon a subject which it certainly seems worth while to work out.